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10/024118



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Attestation

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The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

Patentanmeldung Nr. Patent application No. Demande de brevet n°

00128496.7

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

I.L.C. HATTEN-HECKMAN

DEN HAAG, DEN
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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

Anmeldung Nr.:
Application no.:
Demande n°: 00128496.7

Anmeldetag:
Date of filing:
Date de dépôt: 23/12/00

Anmelder:
Applicant(s):
Demandeur(s):
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UNITED STATES OF AMERICA

Bezeichnung der Erfindung:
Title of the invention:
Titre de l'invention:
Distributing information in a markup language within a computer system

In Anspruch genomme Priorität(en) / Priority(ies) claimed / Priorité(s) revendiquée(s)

Staat:	Tag:	Aktenzeichen:
State:	Date:	File no.
Pays:	Date:	Numéro de dépôt:

Internationale Patentklassifikation:
International Patent classification:
Classification internationale des brevets:

/

Am Anmeldetag benannte Vertragsstaaten:
Contracting states designated at date of filing: AT/BE/CH/CY/DE/DK/ES/FI/FR/GB/GR/IE/IT/LI/LU/MC/NL/PT/SE/TR
Etats contractants désignés lors du dépôt:

Bemerkungen:
Remarks:
Remarques:

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23. Dez. 2000

DESCRIPTION

Distributing Information in a Markup Language
within a Computer System

The invention relates to a method of operating a computer system as well as to a computer system comprising at least one content provider which is coupled to a portal which is coupled to a user.

In known computer systems, the user may reside on a computer with a known browser and may be connected to the Internet. If the user requires information, it is possible to access the portal via the Internet and to request the desired information from the portal.

In known systems, the portal replicates all information which may be requested by users from the content providers and stores all that information in its own system. Apparently, this storage needs a lot of memory space within the portal. As well, the content providers have no control anymore of the provided information, e.g. the portal may forward the information to another portal without the permission of the content provider.

Then, if a user requests some information, the portal combines the required information from its stored information and sends the combined information to the requesting user.

When the portal replicates the information from the content providers, the information is stored in the specific format of the information within the portal. This has the consequence that the portal needs to comprise a content-specific application (also known as portlet) which is able to convert the required information from the specific format of the content provider into a format, e.g. the Hypertext Markup Language (HTML), which may be displayed by the browser of the user. Apparently, the conversion of the requested information leads to another effort which has to be carried out by the portal. Furthermore, this task is quite cumbersome as the portal needs to be familiar with all formats of

the information provided by the different content providers.

To solve this problem, the content providers often create the portlet and offer it to the portals. However, this leads to the fact that the portal takes over programs from the content providers which may include undesirable logic or data like a virus or the like.

Another disadvantage of the known system is the fact that the portal has to pay any fees in advance which the content providers charge for the information provided by them. If, then, the charged information is not requested by the users, it is possible that the portal has paid the fees without getting the fees back from the users.

It is an object of the invention to provide a method of operating a computer system which requires less memory space within the portal and which offers more flexibility for the portal.

This object is solved by a method according to claim 1. As well, the object is solved by a computer system according to claim 10.

The invention differentiates between the location where the information is stored and the location where the information is combined. For that purpose, the invention separates the portlet which runs on the portal in known systems, into a specific portlet and a generic portlet. The specific portlet is located within the content provider and is provided for generating the required information in a markup language. The generic portlet is located within the portal and is provided for combining the information in said markup language.

The difference between known systems and the computer system according to the invention, therefore, is the fact that the information is sent from the content provider to the portal not in the specific format of the content provider, but in the common format of a markup language. This difference is reached by

introducing the specific portlet within the content provider. This specific portlet generates the information in the markup language out of the specific format of the content provider.

As a result, the portal does not require those programs anymore which, in known systems, are necessary to convert the information from the specific format of the content provider into a common format. Instead, the portal only requires a program which is able to combine the information received from the content providers in the markup language. This program is the generic portlet within the portal.

Another advantage of the invention is the fact that it is not necessary anymore to replicate all information from the content providers to the portal. Insofar, no memory space is necessary anymore within the portal. Instead, if a user requests information from the portal, the portal forwards this request to the respective content providers. Then, these content providers send the requested information to the portal in the markup language. The portal combines this information and sends the completed information back to the user.

Due to the fact that the portal does not need to replicate all information from the content providers, it is also not necessary anymore for the portal to pay any fees for this information in advance. If the user requests information from the portal which is charged with a fee, the portal may first ask the user for confirmation and then send the requested information after having received the confirmation from the user.

This advantage leads to a paying system which is actually based on the requested information and in which the portal is only involved as a forwarding institution in between the user and the content provider but not as an institution which is paying fees in advance.

Another advantage of the invention is the possibility of any of

the content providers to change their information or to add new information without any problem and independently of the portal. The portal does not have to replicate or store the information so that it is only within the content provider where these changes and addition occur. Furthermore, the content provider has the advantage that any control over the information is always possible for the content provider as no information is stored anywhere else.

Further embodiments and advantages of the invention are described in the following description of the drawing. The only figure of the drawing shows a computer system according to the invention.

The figure shows a computer system 10. A number of content providers 11, 12, 13 are also shown in the figure. These content providers 11, 12, 13 provide any kind of information, like news, whether, stock quotes and so on. The content providers 11, 12, 13 are located on server computers within the computer system 10.

Any of the content providers 11, 12, 13 comprises a so-called specific portlet 14, 15, 16 which is a program running on the respective server computer of the content provider 11, 12, 13. The specific portlets 14, 15, 16 are able to generate the information which is present within the content provider 11, 12, 13 in a markup language, in particular in Hypertext Markup Language (HTML). The generated HTML-markup may be a fragment, i.e. the generated fragment must not actually contain any HTML-tag but may be limited to less. However, the generated HTML-markup may also be a well-defined HTML-document. The generated HTML-markup of the information, i.e. the fragments or the documents, may then be sent from the content providers 11, 12, 13 to a portal 17.

The portal 17 collects the information received from the content providers 11, 12, 13. The portal 17 is located on a server computer within the computer system 10. The portal 17 comprises at least one so-called generic portlet 18 which is a program

running on the server computer of the portal 17. In particular, the generic portlet 18 is able to combine the fragments and documents of information sent by the several content providers 11, 12, 13 into a complete information.

The combined and complete information is then sent from the portal 17 to at least one user 19. The user 19, usually, is requesting the information from the portal 17. The user 19 comprises a client computer with a common browser program.

In running conditions, the portal 17 identifies all available content providers 11, 12, 13 and establishes a corresponding list. This list may then be offered to all users 19 and/or information requests or only to some of them.

If a user requests for information, this request is sent from the user 19 to the portal 17. For that purpose, the browser of the user's 19 client computer is used. The information request may therefore be sent as HTML-markup from the user 19 to the portal 17.

The portal 17 then connects to each of the content providers 11, 12, 13 synchronously or asynchronously, and collects the information requested by the user 19. During this connection, additional data may be exchanged between the portal 17 and the content providers 11, 12, 13. Such data may e.g. relate to the name and/or address of the user 19, the type of the browser which is used by the user 19, and the like.

The information requested from the content providers 11, 12, 13 is generated within the content providers 11, 12, 13. For that purpose, the specific portlets 14, 15, 16 within the content providers 11, 12, 13 generate the relevant part of the required information or the entire required information as a fragment or a document in HTML-markup. This means, that e.g. the specific portlet 16 of the content provider 13 generates a document of the stock quotes or at least a fragment of the stock quotes in

HTML-markup.

It is important to notice that the generated fragment in HTML-markup is most likely not generated as a valid or well-formed HTML-document. In particular, the fragment may not contain any HTML-tags but rather limit itself to any other HTML-markup. It is emphasized that the fragment may also be generated in any other kind of markup language, for example the Wireless Markup Language (WML) or the like.

The specific portlets 14, 15, 16 within the content providers 11, 12, 13 are adapted to the respective information of the content provider 11, 12, 13 and in particular to the format of that information. Therefore, the specific portlets 14, 15, 16 within the different content providers 11, 12, 13 may be different. That is the reason why they are called *specific* portlets 14, 15, 16. As a consequence, the specific portlets 14, 15, 16 may be established and updated by the content providers 11, 12, 13 themselves with the advantage that those ones, i.e. the content providers 11, 12, 13, who provide the information also provide the corresponding specific portlets 14, 15, 16 for generating the fragments of information in HTML-markup.

These fragments of HTML-markup are then sent from the number of content providers 11, 12, 13 back to the portal 17. The portal 17 collects the received information and combines it into the requested information. For that purpose, the generic portlet 18 is used within the portal. This generic portlet 18 is able to interpret the fragments in HTML-markup and combine them into the complete information. As all fragments are received as HTML-markup, this portlet 18 is called *generic*.

Then, the combined and completed information is sent from the portal 17 back to the user 19. The information is sent again in HTML-markup. The information received by the user 19 may then be displayed on the computer system to the user 19 with the help of

the browser.

The content format between the content providers 11, 12, 13, the portal 17 and the user 19 may but does not need to be based on HTML-markup. However, due to the use of HTML-markup within the Internet, this format is advantageous.

Furthermore, if the described computer system 10 is realized in the Internet, it is possible that - instead of fragments or documents of HTML-markup - Uniform Resource Identifiers (URIs) are sent from the content providers 11, 12, 13 to the portal 17. In this case, the portal 17 combines these URIs in the same way as the fragments and documents of HTML-markup. The portal 17 then sends the combined and completed information as HTML-markup to the user 19.

If the portal 17 provides data concerning e.g. the type of the browser of the user 19 to the content providers 11, 12, 13, then it is possible that only those content providers 11, 12, 13 may participate in the provision of information to this user 19 which are able to send their fragments or documents of information in a format which is compatible to the browser of the user 19. A content provider 11, 12, 13 which is not compatible to this browser may thereby be excluded.

If the information to be provided from the content providers 11, 12, 13 to the portal 17 is associated with a fee, the respective content provider 11, 12, 13 first sends a charge request to the portal 17 instead of the requested information. If the fee to be charged is confirmed, the requested information may be sent in a second step.

The fee may be positive if e.g. the content provider 11, 12, 13 wants to include advertisements in the information to be provided. In this case, the content provider 11, 12, 13 has to pay the fee to the portal 17. For a faster provision of information, it is possible that the content providers 11, 12, 13 assume that

the portal 17 always agrees to receive advertisements together with the requested information. In this case, the fee to be paid by the content providers 11, 12, 13 may be credited automatically to the portal 17.

The fee may be negative if e.g. the content provider 11, 12, 13 charges the information to be provided with the fee. In this case, the portal 17 has to ask the user 19 whether the user 19 accepts this fee. The fee to be paid may be displayed to the user 19. Then, the portal 17 has to accept or deny the fee to the respective content provider 11, 12, 13 depending on the reaction of the user 19. For a faster provision of information, it is possible that the content providers 11, 12, 13 assume that the user 19 always accepts the fee so that the requested information may be sent without any confirmation by the user 19.

Claims

1. A method of operating a computer system (10) wherein said computer system (10) comprises at least one content provider (11, 12, 13) which is coupled to a portal (17) which is coupled to a user (19), and wherein said method comprises the following steps: the content providers (11, 12, 13) generate information in a markup language, the generated information is sent from the content providers (11, 12, 13) to the portal (17), the portal (17) combines the received information, and the combined information is sent from the portal (17) to the user (19).
2. The method of claim 1 wherein the content providers (11, 12, 13) only generate fragments of information in the markup language, wherein only the fragments of information are sent from the content providers (11, 12, 13) to the portal (17), and wherein the portal (17) combines the fragments of information into the combined information.
3. The method of one of claims 1 or 2 wherein the content provider (11, 12, 13) comprises a specific portlet (14, 15, 16) for generating the information in the markup language.
4. The method of one of claims 1 to 3 wherein the portal (17) comprises a generic portlet (18) for combining the received information from the content providers (11, 12, 13) into the combined information.
5. The method of one of claims 1 to 4 wherein the user (19) comprises a browser for displaying the information received from the portal (17).
6. The method of one of claims 1 to 5 wherein the Hypertext Markup Language (HTML) is used.
7. The method of one of claims 1 to 6 wherein the information

which is sent from the content provider (11, 12, 13) to the portal (17), is associated with a fee.

8. The method of claim 7 wherein the fee is charged prior to the sending of the information.

9. A computer program or a computer program product which is suitable to perform the method of one of claims 1 to 8 if it is loaded into a computer.

10. A computer system (10) comprising at least one content provider (11, 12, 13) which is coupled to a portal (17) which is coupled to a user (19) wherein the content provider (11, 12, 13) comprises means for generating information in a markup language and for sending the information to the portal (17), wherein the portal (17) comprises means for combining the received information and for sending the combined information to the user (19).

11. The computer system (10) of claim 10 wherein the content provider (11, 12, 13) comprises a specific portlet (14, 15, 16) for generating a fragment of information in HTML-markup.

12. The computer system (10) of claim 11 wherein the portal (17) comprises a generic portlet (18) for combining the received fragments of information in HTML-markup.

13. The computer system (10) of one of claims 10 to 12 wherein the information sent from the content provider (11, 12, 13) to the portal (17) is charged with a fee.

23. Dez. 2000

A B S T R A C T

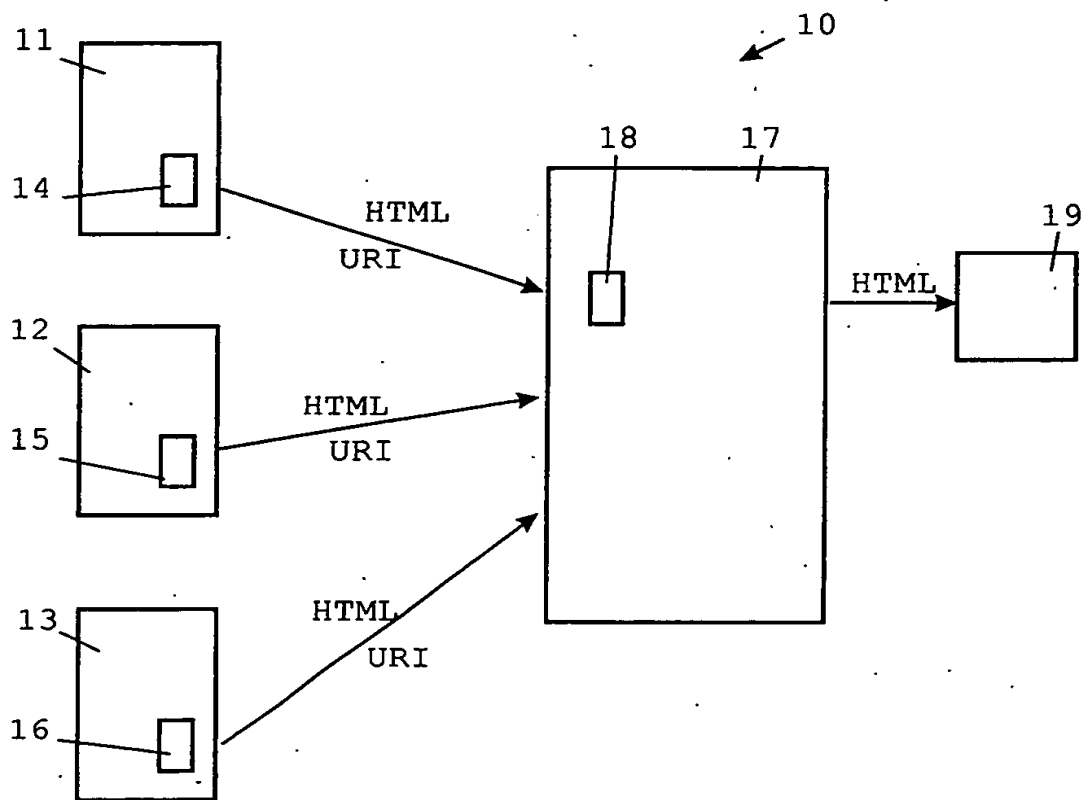
A computer system (10) is described comprising at least one content provider (11, 12, 13) which is coupled to a portal (17) which is coupled to a user (19). The content provider (11, 12, 13) comprises means for generating information in a markup language and for sending the information to the portal (17). The portal (17) comprises means for combining the received information and for sending the combined information to the user (19).

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